



Ympäristöministeriö  
Miljöministeriet  
Ministry of the Environment

# Carbon benchmarking of buildings in Finland

71st LCA Forum, Zürich  
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Leader in circular economy by 2025

Political goals

Carbon neutral by 2035

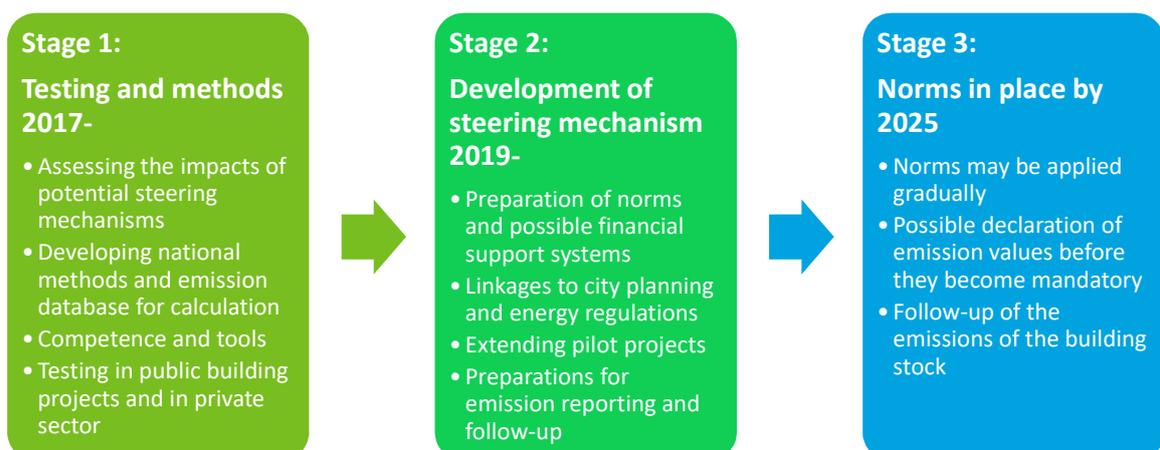
## Towards a sustainable built environment



Esittäjän nimi alatunnisteeseen

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## Roadmap to low carbon construction



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## Impact Assessment for the Roadmap (VTT 2018)

### Six policy measures included in the roadmap were assessed

- Declaration for carbon footprint for public/all buildings
- Real estate tax based on carbon footprint
- Increased building allowance/reduced building permission fee for reduced carbon footprint
- Demand for limit values for carbon footprint

### Impacts

- Impacts on CO<sub>2</sub> emissions, building market, building costs and administrative burden were assessed
- Limit values for carbon footprint were found most effective policy measure
- Their estimated emission reduction = 0,5 MtCO<sub>2</sub>e/
- Equals 10 % of the gap that Finland is behind its 2030 pledges

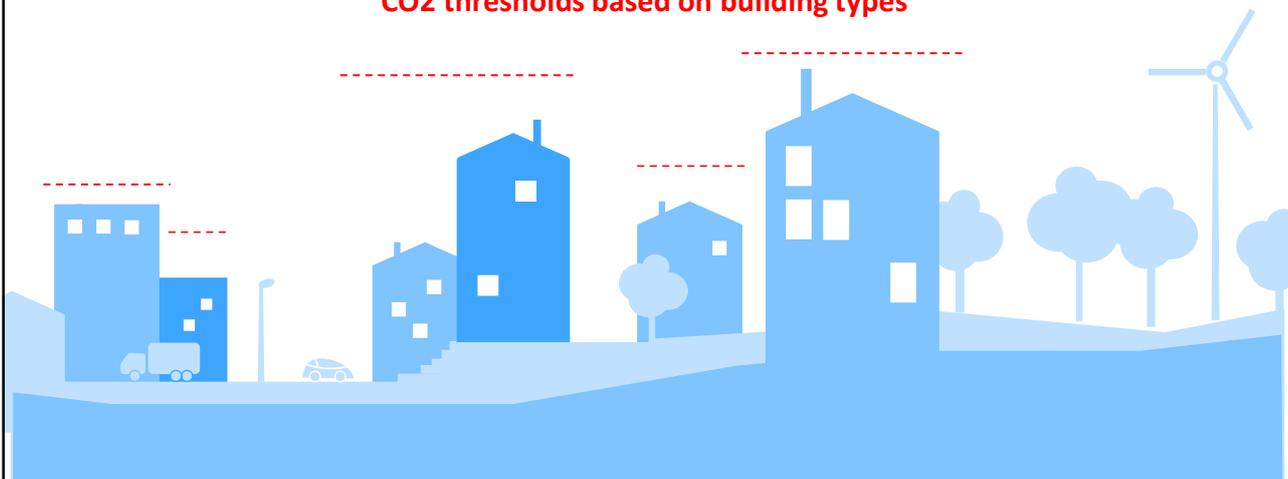
### Other assessed measures

- were found less effective but they could be used in order to e.g. identify forerunners
- The potential of public procurement may be significant

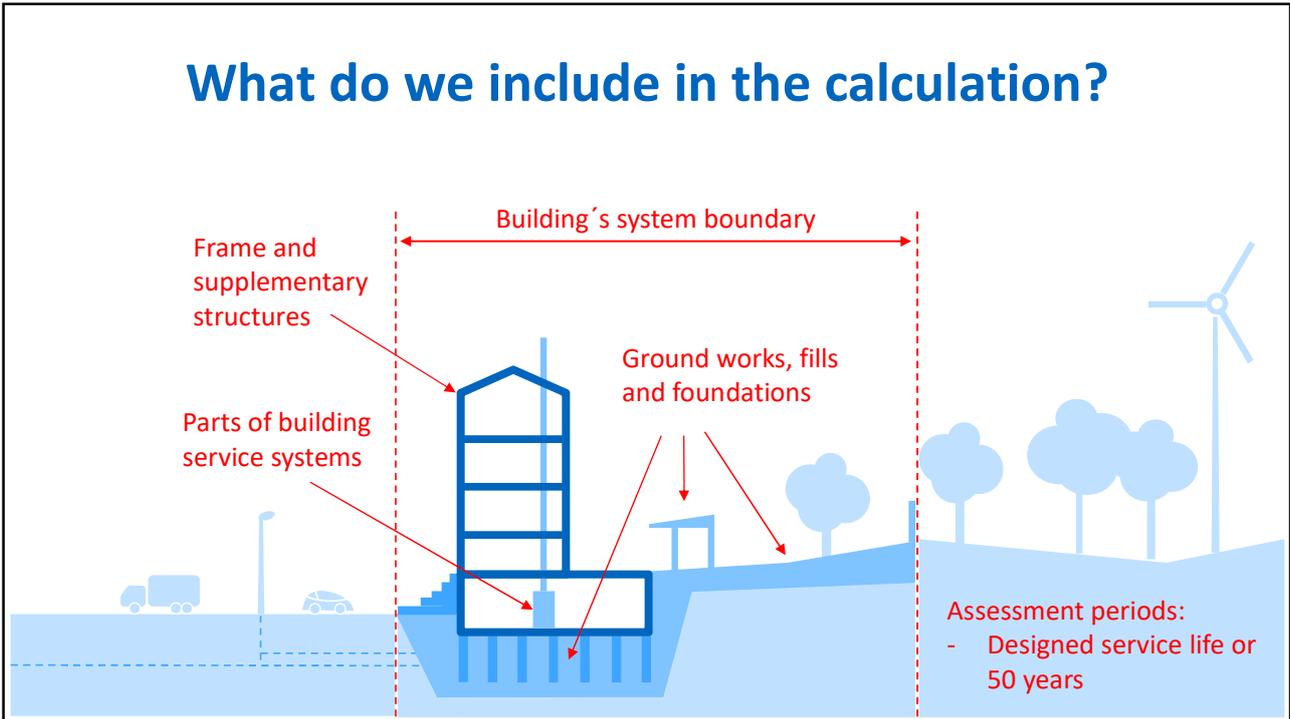
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## Carbon thresholds for buildings before 2025

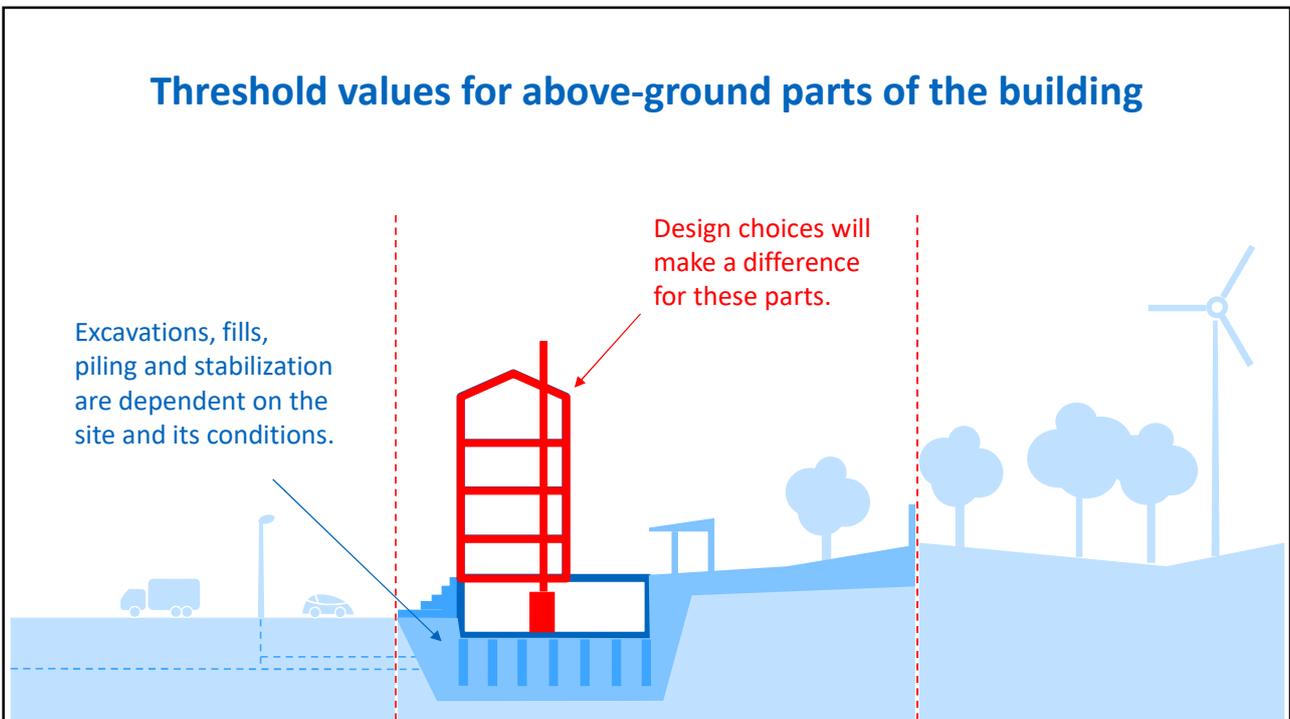
### CO<sub>2</sub> thresholds based on building types

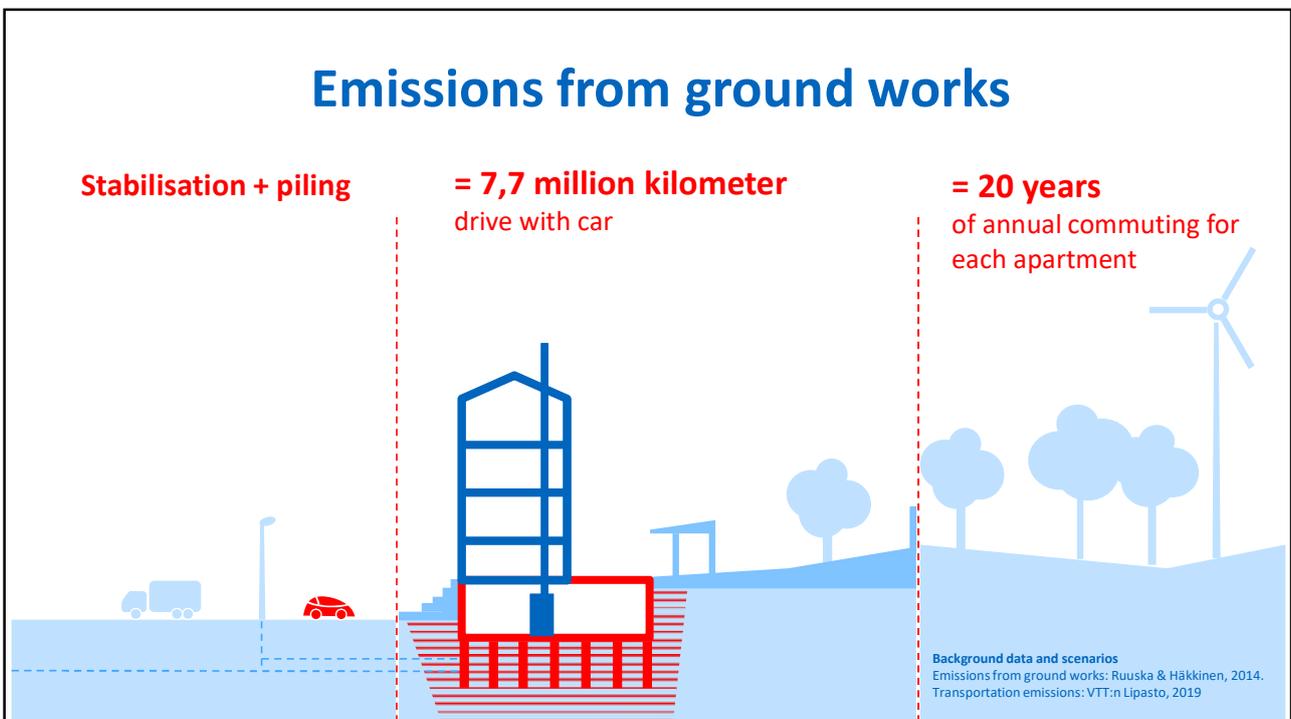
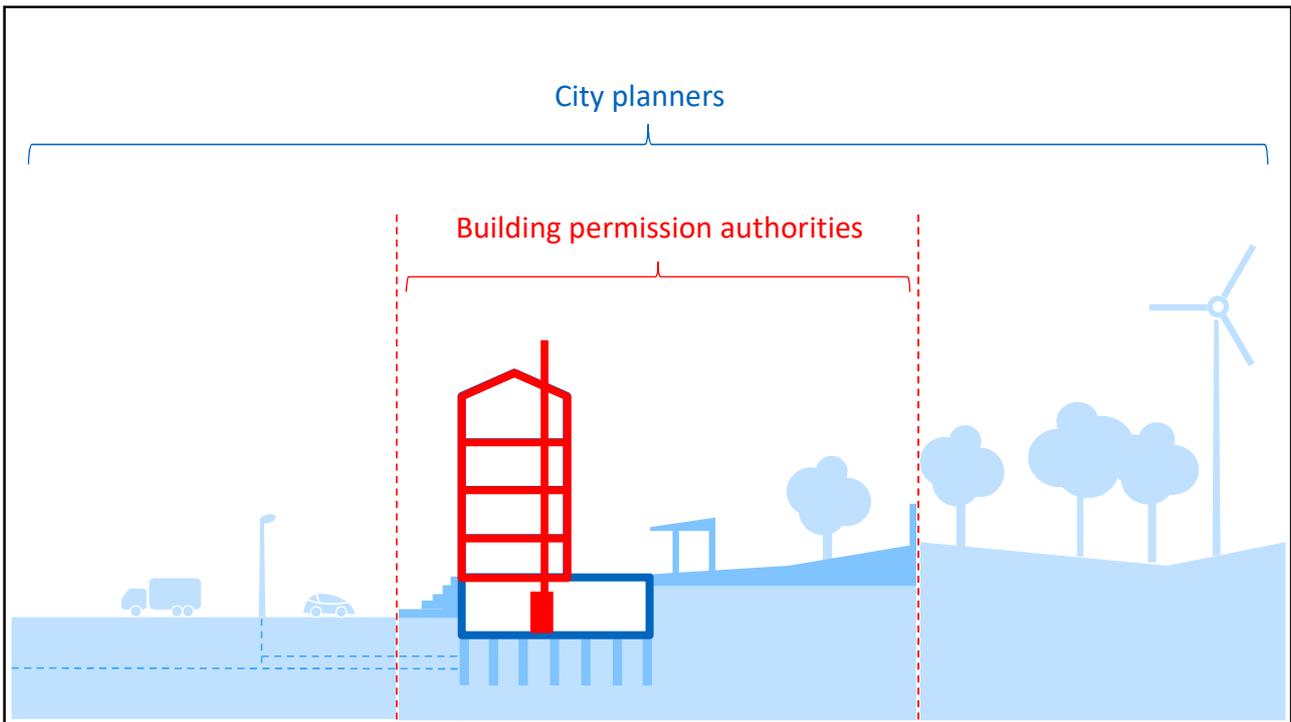


## What do we include in the calculation?



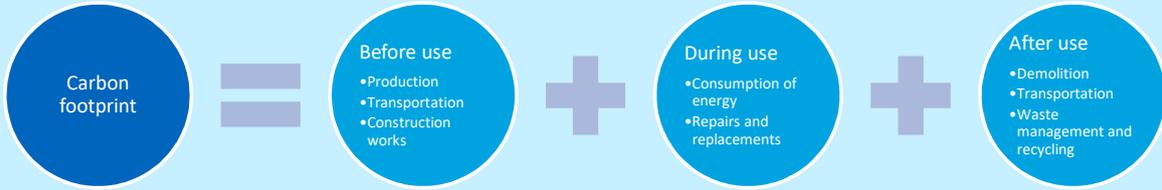
## Threshold values for above-ground parts of the building



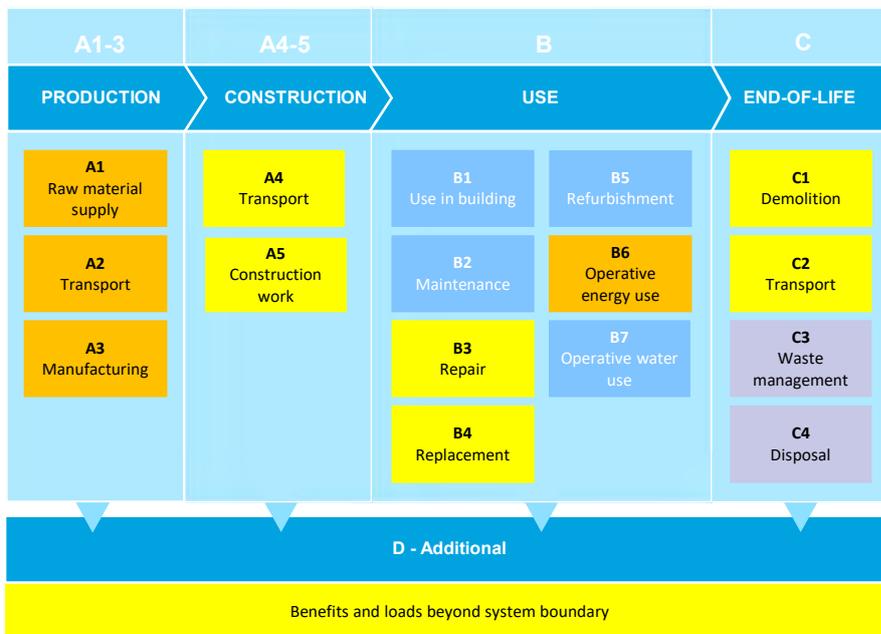
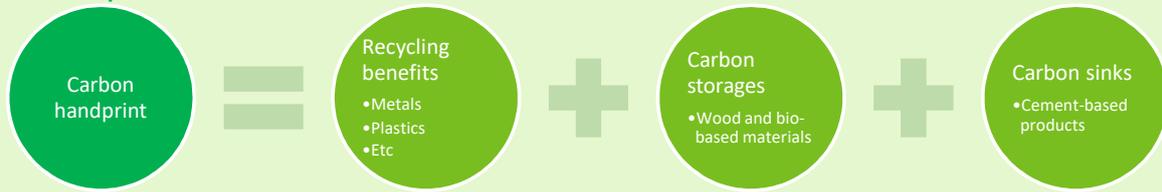


# Footprints and handprints

## Negative impacts



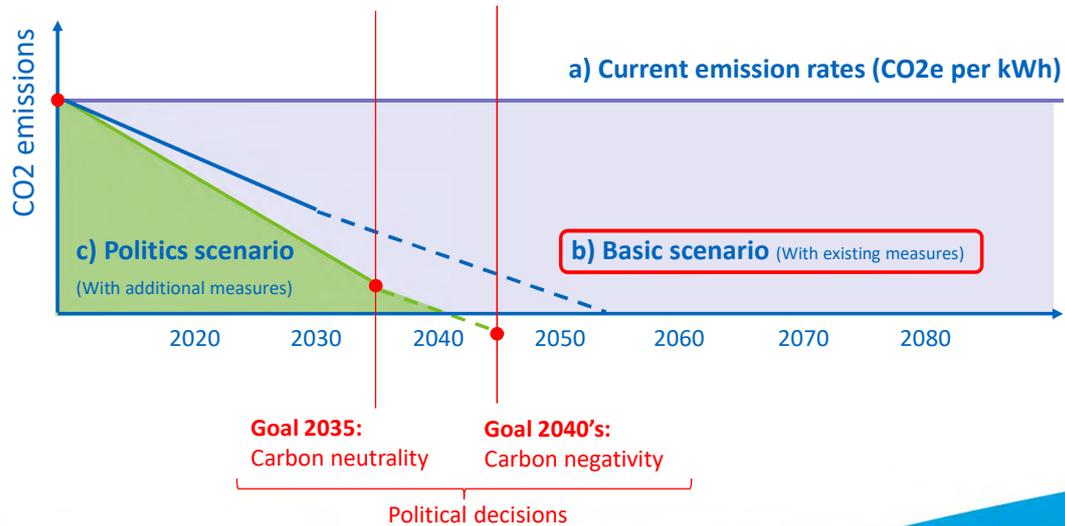
## Positive impacts



### Temporal system boundary

- Must be calculated
- May be based on scenarios
- Must be based on scenarios
- Not required

## Emission scenarios should reflect climate policies



## Scenarios in EN standards

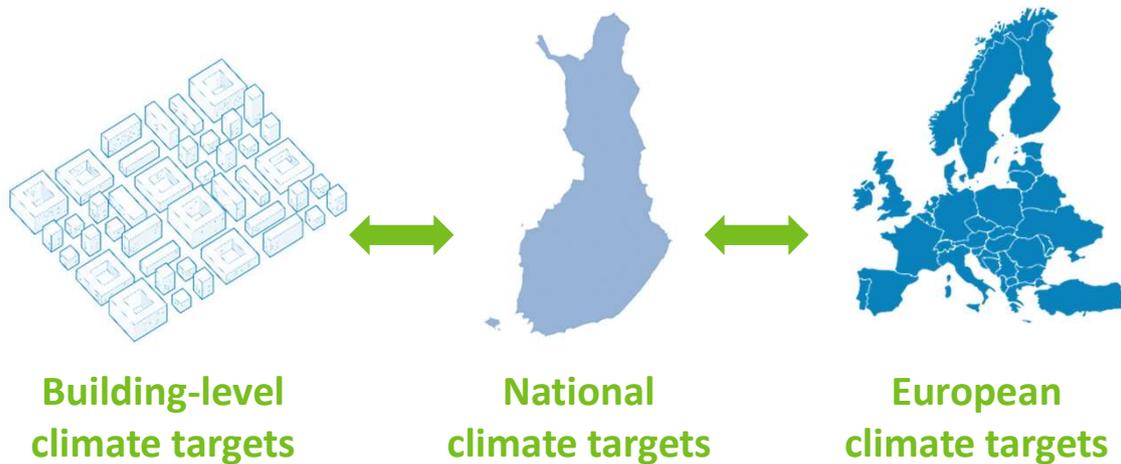
EN 15643-1, section 5.4:

*“The technical and functional requirements shall be taken from the client’s brief, the regulatory requirements and from the project specification.”*

EN 15978, section 8.6.1:

*“Scenarios should be based on the existing regulations, client’s requirements, or accepted code of practice.”*

## Comparability of climate policies

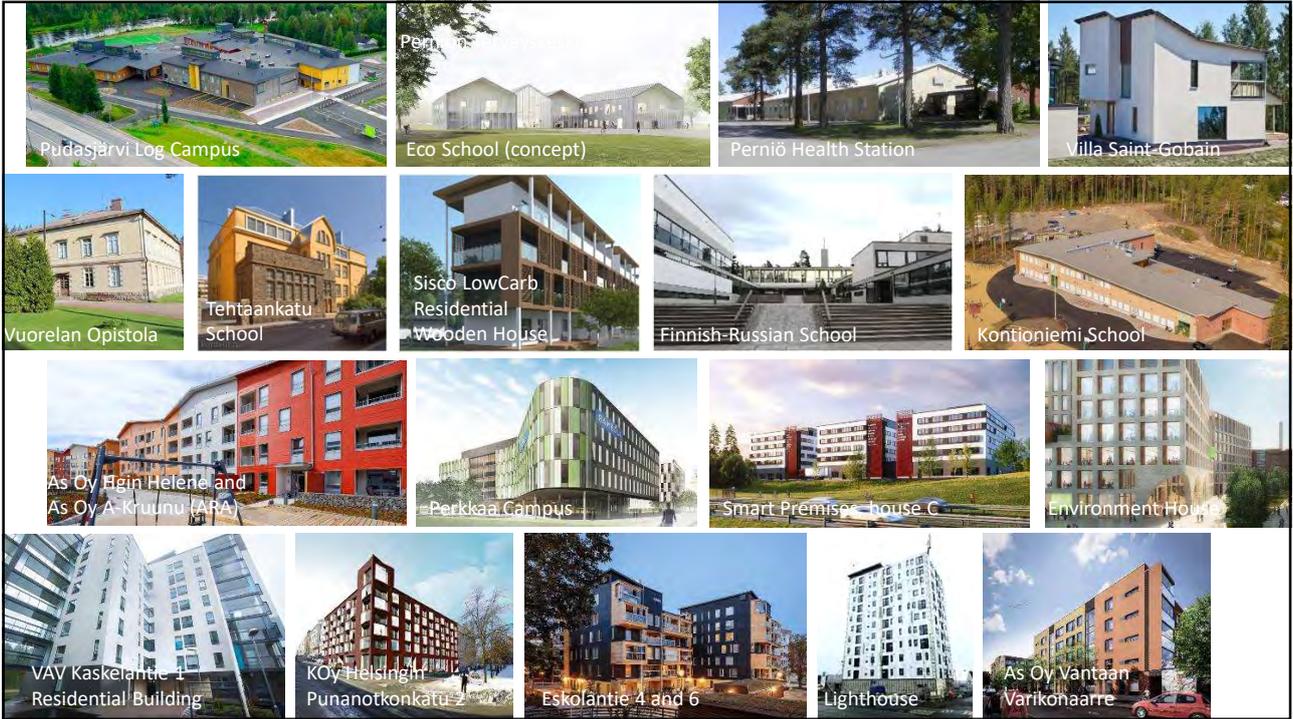


**Governmental assignment:  
Double the use of wood in construction in 4 years**

- Annual emissions 56 MtCO<sub>2</sub>e
- 84 MtCO<sub>2</sub>e carbon stored in the built environment
- Corresponds to 2...2.5 years of annual forest growth

- Each wooden house saves 113...125 kgCO<sub>2</sub>e / m<sup>2</sup>
- Their carbon storage is 150...300 kgCO<sub>2</sub>e / m<sup>2</sup>
- The substitution potential to a concrete house is ~40 %

Source: VTT, 2018. Rakentamisen hiilivarasto



## Keep it usable





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Thank you for your  
attention.

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